

USSR

UDC 616.43/44-008:612.014.42:611.77

ORUDZHEV, I. M. and DZHABAROV, K. A., Azerbaydzhan State Medical Institute

"Skin Bielectric Potentials in Some Endocrine Diseases Pathogenetically Connected with Diencephalic Disturbances"

Baku, Azerbaydzhanskiy Meditsinskiy Zhurnal, No 7, 1973, pp 20-25

Abstract: Bioelectric potentials were derived from the parietal region of the cortex of patients with Cushing's disease (32), diabetes insipidus (12), acromegaly (10), and hyperthyroidism with the diencephalic syndrome (37) before and after treatment. Bioelectrical activity was very high (over 12 mv) before the first course of treatment in all but a few cases. Therapy resulted in normalization of the potentials in all the diabetes patients as well as marked improvement in the clinical picture. In the patients with Cushing's disease, acromegaly, and hyperthyroidism, the potentials tended to return to normal and there was some improvement in the course of the disease. Additional courses of treatment brought further improvement in both skin bioelectric activity and various symptoms.

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USSR

UDC: 517.514

DZHABRAILOV, A. D.

"Inequalities Such as Imbedding Theorems for Weight Classes of Functions"

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications -- Collection of Works], Moscow, Nauka Press, 1970, pp 67-73, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract #8B91. by the author).

Translation: Differential properties of functions of weight spaces for which the differentiability indicator is made up of 2^n free vectors are studied. These weight functional spaces contain the known weight spaces of functions with mixed dominating derivatives as a particular case. The "weight" is exponential in nature. Inequalities are produced for these classes which are similar to imbedding theorems upon transition to m -dimensional manifolds ($m \leq n$).

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USSR

UDC 517.955.4

DZHABRAILOV, A. D., Moscow Physicotechnical Institute

"Investigation of Differential Properties of Generalized Solutions of Certain Classes of Quasilinear Parabolic Second-Order Equations"

Minsk, Differentsial'nyye Uravneniya, Vol. 6, No. 8, Aug 70, pp 1467-1480

Abstract: The differential properties of generalized solutions of quasilinear parabolic equations of the second order in the cylinder $Q_T \equiv \Omega \times [0, T]$

$$u_t - \sum_{i=1}^n D_{x_i} F_i(x, t; u_{x_1}(x, t), \dots, u_{x_n}(x, t)) = f(x, t) \quad (1)$$

are investigated with the initial data

$$u|_{\Gamma_T} = \phi|_{\Gamma_T}. \quad (2)$$

$\Gamma_T = S_T \cup \{(x, t); x \in \bar{\Omega}, t = 0\}$, S_T is the lateral surface of a cylinder Q_T , and Ω is

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DZHABRAILOV, A. D., *Differentsial'nyye Uravneniya*, Vol 6, No 8, Aug 70, pp 1467-1480

a bounded n -dimensional region with a piecewise-continuous boundary S . It is shown that generalized solutions of equation (1) are ordinary solutions; i.e., they satisfy equation (1) almost everywhere in Q'_T (where \bar{Q}'_T is contained in Q_T)

for the more general condition of parabolicity

$$\sum_{i,j} \frac{\partial}{\partial \xi_j} F_i(x; t; \xi) \eta_i \eta_j \geq c |\xi|^{p-2} \eta_i^2,$$

where

$$\xi = (\xi_1, \dots, \xi_n), \quad \eta = (\eta_1, \dots, \eta_n) \quad |\xi| = \sqrt{\sum_1^n \xi_i^2}, \quad |\eta| = \sqrt{\sum_1^n \eta_i^2}.$$

USSR

UDC: 517.51

DZHABRAILOV, A. D., IL'IN, V. P.

"Certain Inequalities Between Norms of Partial Derivatives of Functions of Many Variables"

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications -- Collection of Works], Moscow, Nauka Press, 1970, pp 73-75, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract #8B96, by the authors).

Translation: The inequalities between the norms of partial derivatives of functions of many variables are studied; they contain certain known inequalities for functions of Classes $W_p^r(G)$ and $S_p^r W(G)$ as particular cases.

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UDC: 517.514

DZHABRAILOV, A. D.

"Boundary Properties of Functions of Weight Spaces"

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications -- Collection of Works], Moscow, Nauka Press, 1970, pp 64-67, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract #8B90, by the author).

Translation: The differential properties are studied for functions of weight spaces, the differentiability indicator of which consists of any free $n+1$ vectors r^0, r^1, \dots, r^n . The "weight" is exponential in nature. If the functions are defined in a certain (generally unlimited) area Ω^n , the weight is taken with power α of the distance to a certain m -dimensional surface (not necessarily limited) belonging to Ω^n , while if the function is defined in E^{+n} , the weight is taken as $\prod_{i=1}^n x_i^{\alpha_i}$. The behavior of the functions themselves and their corresponding derivatives on the m -dimensional surface belonging to Ω^n is studied.

USSR

DZHAFAROV, A. D., and DZHALALOVA, D. M., Chair of Infectious Diseases, Clinical Faculty, and Central Scientific Research Laboratory, Tashkent Medical Institute

"The Problem of Cardiac Failure in Brucellosis"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 7, Jul 70, pp 30-32

Abstract: Electrocardiogram changes indicating myocardial failure were found in almost two thirds of a group of brucellosis patients. Polycardiographic studies showed disturbances, in cardiac activity phases in over half of the patients examined, exhibited by a lowered contractile function of the myocardium, disturbance of the expulsion period (blood expelled from the heart to the vessels), the indicator of mechanical coefficient, the intrasystolic indicator, and the index of myocardium tonus. These observations were made on patients who did not complain of any cardiovascular problems and who aside from muted heart tones, had no clinical symptoms indicative of any heart problems. These data show that cardiac failure must be taken into consideration in brucellosis patients before physiotherapy or vaccine therapy is prescribed.

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Oncology

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USSR

UDC 577.391:616.0064.577.15/17

ABDULLAYEV, G. B., GASANOV, G. G., RAGIMOV, R. N., TEPLYAKOVA, G. V.,
MEKHTIYEV, M. A., and DZHAFAROV, A. I., Institute of Physiology, Institute
of Physics, and Institute of Roentgenology and Oncology

"Selenium and Tumor Growth Under Experimental Conditions"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 3, 1973, pp 18-24

Abstract: In mice and rats with transplanted tumors (M-1 sarcoma, Ehrlich's ascitic tumor, and Geren's carcinoma), a single injection of sodium selenite significantly retarded the growth of the tumor, especially if the injection was given when the tumor could barely be felt. The inhibition of tumor growth was even more pronounced when sodium selenite was combined with X-irradiation. In addition, the compound increased the animals' tolerance for radiation. When the animals received the tumor suspension after it had been treated with sodium selenite and heated to 40° for 2 hours, tumors did not begin to appear until 12 to 21 days after inoculation compared to 9 days in the control (given the tumor suspension treated with sodium selenite at room temperature). The inhibitory effect of the selenium compound is attributed to its ability to stimulate the production of endogenous antioxidants and lower the oxygen concentration of the tissues.

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UDC 628.58:549.74

ABDULLAYEV, G. B., GASANOV, G. G., MEKHTIYEV, M. A., DZHAFAROV, A. I.,
MAZANOV, D. M., BABAYEV, R. A., SADYKHOV, S. T., TEPLYAKOVA, G. V., and
RAGIMOV, R. N.

"Radioprotective Effect of Selenium"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 3, 1973, pp 12-17

Abstract: Sodium selenite administered to Wistar rats 20 minutes after X-irradiation at 490 rad had little protective effect, the survival rate and average life-span being insignificantly higher than in the controls (50% survival rate by day 30). However, the same dose of the compound administered 30 minutes prior to irradiation (intraperitoneally, subcutaneously, or perorally) had a markedly protective effect; the survival rate was 90% and the average life-span 28 ± 3.6 days. When sodium selenite was combined with vitamins E (as an antioxidant) and A (to promote the retention of vitamin E in the body), the protective effect was even more pronounced, the survival rate and average life-span being significantly higher than in the controls (given selenium but not the vitamins).

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USSR

UDC 577.3

ABDULLAYEV, G. B., MAMEDOV, Sh. V., DZHAFAROV, A. I., and PERELYGIN, V. V.,
Institute of Physics and Institute of Physiology

"Inhibition of Free Radicals in the Retina by Selenium"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 3, 1973, pp 25-28

Abstract: The electron paramagnetic resonance spectrum was studied in the enucleated eyes of rabbits two days after they received parenteral injections of sodium selenite. At room temperature, both the control and experimental preparations of the retina and pigment epithelium showed an almost symmetrical singlet with $g = 2.0035 \pm 0.005$ and $\Delta H_m = 6 \pm 5$ oe. The only difference was in the intensity of the signal. The signals were more intense in the pigment epithelium. At the temperature of liquid nitrogen, all the parameters of the line were almost unchanged, but there was a substantial decrease in intensity of the signal. After the specimens were thawed at room temperature, the intensity of the signal was completely restored. In specimens from animals treated with selenium, the shape, g-factor, and width of the line remained unchanged, although there was a significant decrease in concentration of the paramagnetic centers compared to the control.

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UDC: 517.514

DZHAFAROV, A. S., MAMEDOV, SH. F.

"Traces of Functions of Certain Weight Classes"

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications -- Collection of Works], Moscow, Nauka Press, 1970, pp 81-95, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract #8B82, by the authors).

Translation: An evaluation is made for the closeness of certain functions of several variables of class (like the class $H_{L'}^{r_1, \dots, r_n}$ of S. M. Nikol'skiy) having differential properties in mixed Lebesgue norms with weight $\prod_{k=1}^n (1+|x_k|)^{\alpha_k}$ to their values on a hyperplane of lower measure, where α_k are arbitrary real numbers. It is also established that this rate cannot be improved. The results produced are closely related to the results of S. L. Sobolev, V. I. Korovkin, S. M. Nikol'skiy, L. D. Kudryavtsev, and P. Pilik.

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UDC: 517.514

DZHAEROV, A. S.

"Optimal Approximation of Finite Spherical Sums and Certain Differential Properties of Functions Harmonic in a Sphere"

Teoremy Vlozheniya i Ikh Prilozheniya [Imbedding Theorems and Their Applications -- Collection of Works], Moscow, Nauka Press, 1970, pp 75-81, (Translated from Referativnyy Zhurnal Matematika, No. 8, 1970, Abstract #8B76, by the author).

Translation: Using the spherical modulus of continuity and Laplace operator in a sphere in place of the ordinary modulus of continuity and partial differentiation, the author obtains classes such as the classes of O. V. Besov. On the basis of the results produced by the author and relating to the interrelationship between the spherical modulus of continuity and the best approximation of finite spherical sums in terms of the norms of these classes, certain direct and inverse relationships between the properties of a function harmonic in a sphere and its boundary value are studied.

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USSR

UDC: 621.37

DZHUVARLY, Ch. M., Academician, DZHAFAROV, E. M., Institute of Physics,
Academy of Sciences of the Azerbaijan SSR

"Accounting for Sagging of Overhead Transmission Lines in Calculation of
Transient Electromagnetic Processes"

Baku, Doklady Akademii Nauk AzerbSSR, Vol 28, No 1, 1972, pp 7-9

Abstract: Computational formulas are derived for determining the voltages and currents in an electric power transmission line with regard to sagging of the wires between towers and also with regard to skin effect. The proposed method is readily computerized for calculation of various wave processes and for determining the effect of wire sagging on the pattern of development of overvoltages.

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UDC 621.315.1

DZHUVARLY, CH. M., Academician of the Azerbaydzhan SSR Academy of Sciences, Doctor of Technical Sciences, Professor, SALAM-ZADE, M. M., Candidate of Technical Sciences, Docent, DZHAFAROV, E. M., Engineer, Azerbaydzhan Petroleum and Chemistry Institute imeni M. Azizbekov

"Parameters of the Mathematical Model of a Surface Effect in the Ground and Conductors for Investigating Wave Processes in Electric Transmission Lines on Digital Computers"

Minsk, Izvestiya vysshikh uchebnykh zavedeniy -- Energetika, No 5, 1972, pp 19-25

Abstract: The parameters of the mathematical model of the surface effect in the ground and conductors for investigating wave processes in 330-750 kilovolt electric power transmission lines are presented for the presence of commutations and thunderstorm effects. Recommendations are made with respect to selecting the optimal schematic for the mathematical model. The presented result can be used for more precise consideration of the surface effect when investigating various wave processes leading to overvoltages in the high and superhigh voltage electric power transmission lines. The initial data and parameters of the models are presented for two and three parallel R, L branches for commutation processes, three matrix R, L branches for single-circuit

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USSR

DZHURARLY, DII. M., et al., Izvestiya vysshikh uchebnykh zavedeniy -- Energetika, No 5, 1972, pp 19-25

transposed electric power transmission lines without considering lightning protective cables and models of three matrix R, L branches for single-circuit 330-750 kilovolt overhead electric power transmission lines. The maximum error in the model of multiphase overhead electric power transmission lines is within the limits of 5%.

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USSR

UDC: 519.217

DZHAFAROV, K. M., NASIROVA, T. I., SKOROKHOD, A. V.

"On the Limit of a Certain Process With Semi-Independent Increments"

Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1971, vyp. 5, pp 51-56 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V106)

Translation: Let $\{\xi_k^{(n)}\}$ be a sequence of series of independent positive identically distributed random quantities, and let $\{\eta_k^{(n)}\}$ be a sequence of series of independent symmetric identically distributed random quantities. Let us construct the random process

$$x_n(t) = \sum_{k=1}^m \eta_k^{(n)}, \text{ if } \sum_{k=1}^m \xi_k^{(n)} < t < \sum_{k=1}^{m+1} \xi_k^{(n)}.$$

The following theorem is proved: If finite-dimensional distributions

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USSR

DZHAFAROV, K. M. et al., Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb., 1971, vyp. 5, pp 51-56

of processes $\chi_n(t)$ converge to finite-dimensional distributions of the vector process $\chi(t)$, then there exists a homogeneous process $\eta(t)$ and a generalized process $\xi(t)$ on $[R_+]$ such that the finite-dimensional distributions of processes $\chi(t)$ and $\eta\xi^{-1}(t)$ coincide where $\xi^{-1}(t) = s$ if s is a minimum solution of the inequality $\xi(s) \leq t \leq \xi(s+0)$. Authors' abstract.

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USSR

UDC 621.315.592

BLASHKU, A. I., VOLTAKS, B. I., BURDIYAN, I. I., ~~DZHAFAROV, T. D.~~, RZAYEV, M. A.

"Temperature and Concentration Dependencies of the Diffusion Coefficient of Zinc in Gallium Antimonide"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 467-472

Abstract: In order to exclude the concentration dependence of the diffusion coefficient in each separate sample and discover the migration mechanism of zinc in gallium antimonide, a study was made of diffusion by the isoconcentration diffusion method. The chemical diffusion of zinc in GaSb specimens alloyed with tellurium with different concentrations was also investigated.

Radioactive isotopes were used to investigate the chemical and isoconcentration diffusions of ^{65}Zn in n-type and p-type gallium antimonide alloyed with tellurium or zinc in the temperature range of 510-680° C. During chemical diffusion, the effective diffusion coefficient (D_{eff}) depends linearly on the concentration. As follows from experiments in electron transfer, zinc in gallium antimonide is shifted in the form of positive ions with an effective charge close to +1. A model is proposed for explaining the observed behavior of zinc in gallium antimonide.

During chemical diffusion, the values of D_{eff} are less than during

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BLASHKU, A. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 467-472

isoconcentration diffusion, and with an increase in temperature, the difference in the values of D_{eff} decreases. It was proposed that the observed decrease in D_{eff} during chemical diffusion may be the result of the effect of braking internal electric fields occurring during diffusion of zinc in n-type gallium antimonide. The effect of the zinc vapor pressure on diffusion was also investigated. The diffusion mechanism is of a dissociative nature. The decrease in the effective diffusion coefficient in n-type GaSb heavily alloyed with tellurium can be connected with the effect of both electron-hole interaction and complex formation between the zinc and tellurium on diffusion [A. I. Blashku, et al., FTP, No 5, 755, 1971].

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USSR

UDC 621.382.2

DZHAFAROV, T. D., DEDEGKAYEV, T. T., DOLGINOV, L. M.

"Investigation of the Concentration Profiles of Diffused Heterojunction of GaP--GaAs and InP--InAs with an Electron Microprobe"

V sb. Fiz. elektronno-dyrochn. perekhodov i poluprovodn. priborov (Zh. fiz. i tekhn. poluprovodnikov) (Physics of Electron-Hole Junctions and Semiconductor Devices — Collection of Works [Journal of Physics and Technology of Semiconductors]), Leningrad, "Nauka," pp 188-190 (from RZh—Elektronika i yeye primeneniye, No 3, Mar 70, Abstract No 3B149)

Translation: The method of x-ray spectral microprobe analysis is used to investigate the concentration profile for the components of smooth heterojunctions of GaP--GaAs and InP--InAs prepared by diffusion of phosphorous into monocrystalline wafers of gallium arsenide and indium arsenide. 2 ill. 3 ref. Summary.

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1/2 043 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--INFLUENCE OF THE SURFACE POLARITY OF GALLIUM ARSENIDE AND INDIUM
ANTIMONIDE ON THE DIFFUSION OF IMPURITIES -U-
AUTHOR-(02)-KULIKOV, G.S., DZHAFAROV, T.D.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1564-6
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, CHEMISTRY, MATERIALS
TOPIC TAGS--PHYSICAL DIFFUSION, ACTIVATION ENERGY, METAL COATING, SILVER,
SURFACE PROPERTY, INDIUM ANTIMONIDE, GALLIUM ARSENIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/0164 STEP NO--UR/0181/70/012/005/1564/1566
CIRC ACCESSION NO--AP0129420
UNCLASSIFIED

2/2 043

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129420

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF POLARITY OF THE SURFACES (111) AND (111) WAS INVESTIGATED IN THE CASE OF DIFFUSION OF AU IN INSB AND IN THE CONC. DISTRIBUTION OF AG IN THE VOL. OF GAAS. THE SURFACE DIFFUSION OF AU IN INSB WAS INVESTIGATED AT 290-440DEGREES. DIFFUSION COEFFS. OF AU ARE DIFFERENT ON THE A AND B SURFACES OF INSB. THE A SURFACE HAS A SMALLER DIFFUSION COEFF. THE ACTIVATION ENERGIES ARE 0.81 AND 0.54 EV FOR THE A AND B SURFACES, RESP. THE VOL. DIFFUSION OF PRIME110 AG IN GAAS WAS INVESTIGATED AT 850DEGREES FOR 16-23 HR. THE CHARACTER OF THE DISTRIBUTION FROM THE SIDE OF GA (A SURFACE) IS SHARPLY DIFFERENT FROM THE DISTRIBUTION FROM THE SIDE OF AS (B SURFACE). THE CONC. OF AG ON THE A SIDE IS MUCH SMALLER THAN ON THE B SIDE. IN THE MIDDLE, THE CONC. OF AG IS CONST. THIS IS DUE TO DIFFERENT INTERACTIONS OF AG WITH THE GA AND AS SURFACES DURING DIFFUSION. FACILITY: INST. POLUPROV., LENINGRAD, USSR.

UNCLASSIFIED

Mining

USSR

355

DZHAFAROV, YU.

"A Rocket Flies Underground"

Moscow, Trud, 30 May 1970, p 4

Abstract: In 1946 M. I. Tsiferov, a lieutenant-colonel in the engineers, suggested and patented a method of digging wells by means of successive explosions, one below the other in the ground. Change of duty kept him from further work on this method until a few years ago, when he was assigned a project involving the use of rockets in drilling operations. He developed a jet drill capable of creating pressures of up to 2,000 atmospheres. The hot gasses emitted under these pressures from the head of the underground "rocket" not only break up the hardest rock and eject it out of the "well", but also propel the rocket into the earth at the same time. Controls not only provide regulation of the burning rate, but also include a separate rocket motor which can be started to propel the rocket back to the surface after its fuel has been expended. The rocket can be refueled and returned to the underground work area. The most recent tests of the rocket in an area near Moscow used a rocket weighing 250 kilograms, including fuel, and a total operating period of 10 seconds, during which the rocket moved to a depth of about 10 meters, thus at a rate of about one meter per second.

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DZHAFAROV, YU, Moscow, Trud, 30 May 1970, p 4

The possibility of using Tsiferov's "underground rocket" in the natural gas conveyance facilities was considered at a conference called at the end of 1969 by A. K. Kortunov, Minister of the Gas Industry. Since the size of the gas pipelines now used is not sufficient to meet the needs of industry -- pipes up to three meters in diameter would be needed -- , the feasibility was considered of tunneling with the rocket at a depth of 100-200 meters below the surface and using the tunnels as pipelines for gas. Such tunnels would convey the gas to industry through "pipelines" which contained no metal at all. In clay soils, gas pumped into the clay tunnels could be precooled to minus 20 degrees centigrade so that it would freeze the clay to a gas-tight wall that would act as a seal forever.

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Acc. Nr.: AN0107019

Ref. Code: UR 9025

AUTHOR-- DZHAFAROV, YU.

TITLE-- A ROCKET THAT TRAVELS UNDERGROUND

NEWSPAPER-- TRUD, MAY 30, 1970, P 4, COLS 1-6

ABSTRACT-- "THE DESIGN RATE OF DRILLING IS 50-100 TIMES AS HIGH AS THE EXISTING ONE, AND HOLES 20-25 KMS DEEP CAN BE DRILLED WITHOUT THE DANGER OF MELTING OF THE BORING DEVICE", WAS THE STATEMENT MADE BY ACADEMICIAN V. I. SMIRNOV /GEOLOGIST/ ABOUT THE JET DRILL DEVELOPED BY ENGINEER-LIEUTENANT COLONEL M. I. TSIFEROV. DURING THE FIELD TESTS NEAR MOSCOW, A ROCKET DRILL WEIGHING 250 KGS INCLUDING THE FUEL BORED ABOUT 10 METERS IN 10 SECONDS. TSIFEROV, WHO STARTED HIS EXPERIMENTS IN 1946, CLAIMS THAT ROCKETS OF UNLIMITED FUEL CAPACITY CAN BE BUILT.

REEL/FRA

19890410

ALS

1/2 025 UNCLASSIFIED
TITLE--TU-154 HAS PASSED THE TEST -U-

PROCESSING DATE--11SEP70

AUTHOR--DZHAFAROV, YU.

COUNTRY OF INFO--USSR

SOURCE--TRUD, JUNE 13, 1970, P 4, COLS 2-4

DATE PUBLISHED-----70

SUBJECT AREAS--AERONAUTICS

TOPIC TAGS--AIRCRAFT FLIGHT TEST/(U)TU154 AIRCRAFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1989/0423

STEP NO--UR/9025/70/000/000/0004/0004

CIRC ACCESSION NO--AN0207031

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UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--ANO207031

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PLANT FLIGHT TESTS OF THE TU-154 AIRPLANE INITIATED IN OCTOBER 3, 1968, WHEN THE CRAFT WAS FOR THE FIRST TIME TAKEN INTO THE AIR BY YU. V. SUKHOV, HAVE BEEN COMPLETED. THE NEW 48-METER LONG AIRLINER, WITH THE NEARLY 38-METER WING SPAN, IS CAPABLE OF FLYING A 20 TON LOAD AT A SPEED OF ABOUT 1,000 KMS PER HOUR OVER A DISTANCE OF 5,600 KMS. WITH ADDED AUXILIARY TANKS THIS DISTANCE CAN BE INCREASED TO 6,400 KMS.

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UNCLASSIFIED

Crystals & Semiconductors

1

USSR

ABDULLAYEV, G. B., ISKENDER-ZADE, Z. A., AKHUNDOV, M. R., DZHAFAROVA, E. A., ALIKHANOVA, Sh. A., Institute of Physics

"Reactive Properties of Diffusion Silicon Barrier-Layer Cells"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, No. 4, 1970, pp 65-70

Abstract: The reactive properties of diffusion silicon photocells in which a high level of injection was developed both by an external voltage and by illumination of the photocell by intense light in order to produce a high injection level on which the capacitance transforms into an inductance without the application of a constant external displacement by intense illumination or photoinjection are studied. An investigation of the barrier capacitance of *p*-Si barrier-layer cells at voltages 0-30 v, temperatures 273-370°K, and frequencies 5-600 kHz showed that the dependence of the capacitance on voltage is determined by a linear distribution of the electroactive admixture in the transition region with a concentration gradient $(7-9) \cdot 10^{20} \text{ cm}^{-4}$. It is shown that the capacitance of the cell under illumination and under the condition $\omega \tau \geq 1$ transforms into an inductance without external voltage. This transition of capacitance into inductance

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USSR

ABDULLAYEV, G. B., et al, Izvestiya Akademii nauk Azerbaydzhanskoy SSR, Seriya fiziko-tekhnicheskikh i matematicheskikh nauk, No. 4, 1970, pp 65-70

under illumination without external displacement is said to be direct support for the injection mechanism for the origin of inductance. It was established that the inversion voltage decreases almost linearly with an increase in the light intensity.

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DZHA FAROVA, E.A.

physics

REACTANCE INVERSION OF (p - n)-JUNCTIONS

JPRS 54674

10 December 1971

[Article by Corresponding Member of the USSR Academy of Sciences G. B. Abdulayev, Z. A. Isender-zadeh, E. A. Dzhaferova, N. R. Akhmedov, Sh. A. Alifanov, Physics Institute of the Azerbaijan SSR Academy of Sciences, Baku, Azerb. SSR, Doklady Akademii Nauk SSSR, Russian, Vol 200, No 2, 1971, submitted 11 March 1971, pp 311-315]

Physical phenomena caused by generation-recombination processes form the basis for operation of devices with (p - n)-junctions. The areas of these processes occurring in wide-band semiconductors via local levels in the forbidden band leads to the occurrence of a phase shift between the current and voltage on application of a variable signal to the (p - n)-junction. The reactance inversion of the (p - n)-structures (the conversion of capacitive reactance into inductive reactance) is observed both for forward and reverse [3, 4] shifts. In the case of a forward shift, the dependence of U_{inv} on the concentration of the alloying admixture in the base region [3] and the inversion during photoinjection [5] show that the latter is observed on coincidence of the concentrations of the injected and equilibrium majority carriers. The inversion voltage for the sharp junctions given in [2] and for the smooth junctions under the condition of $uT \ll 1$ is expressed [3] as

$$U_{inv} = \frac{kT}{q} \ln \frac{N^+ - n^2}{n_i^2}, \quad (1)$$

where N is the concentration of the alloying admixture in the base, or

$$U_{inv} = \frac{kT}{q} - 2 \frac{kT}{q} \ln \frac{N^+ N_p}{n_i^2}, \quad (1')$$

where N^+ , N_p are the effective density of states in the c and v-bands.

The goal of this paper is experimentally to check the validity of formula (1') indicating the linear dependence of U_{inv} on ΔE_g to discover the

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UDC 547.546.183.621.193.4

DZHAFAROVA, N. A., BABAKILANOV, R. A., and FARZALIYEV, V. M., IKHP
[Expansion Unknown], Academy of Sciences Azerbaydzhan SSR

"The Synthesis of Some Cycloalkylphenol Esters of Phosphorous Acid
Which Serve as Oil Additives"

Baku, Azerbaydzhanskiy Khimicheskiy Zhurnal, No 4, 1972, pp 137-138

Abstract: Studies were conducted on the synthesis of various cycloalkylphenol esters of phosphorous acid, and on their efficacy as antioxidants and corrosion preventatives in lubricating oils. The cycloalkylphenols were obtained by cycloalkylation of phenol and cresols with cyclopentene in concentrated sulfuric acid. The esters were synthesized by reacting the cycloalkylphenols with PCl_3 in the presence of triethylamine. The resultant esters were viscous liquids with a characteristic odor and were light brown in color. For evaluation of their antioxidant and anticorrosive properties the esters were added to lubricating oil DS-11 to a concentration of 1%. The results showed that certain of the phosphorous acid esters were effective as additives, and that esters containing the cyclohexyl radical were more effective than those with the cyclopentyl radical.

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Acc. Nr:

AP0049963

Abstracting Service:
CHEMICAL ABST. 5170

Ref. Code:

4R0051

94979n Radiationless transitions in molecules of some porphyrins. Dzhabarov, B. M. (USSR). *Opt. Spektrosk.* 1970, 28(1), 66-8 (Russ). The quantum yields of the intercombination conversion were detd. for chlorophyll *a* and *b*, mesoporphyrin, tetraphenylporphyrin, Zn mesoporphyrin, and Zn tetraphenylporphyrin. The chlorophylls were dissolved in Et₂O, the porphyrins in PhMe. The values $\gamma = N_T/N_S$, where N_T is the amt. of the mols. passing to the triplet state and N_S the amt. of the light quanta absorbed in unit time, were detd. by the Bowers-Porter method (1967) and by the Medinger-Wilkinson method

(CA 63: 1360d). For chlorophyll *a*, the value $\gamma = 0.55-0.6$ was obtained, for the other compds. studied, γ lies in the 0.77-0.88 range. Thus the radiationless deactivation occurs mainly through the triplet state.

P. Adamek -

I B

REEL/FRAME
19801901

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USSR

UDC: 621.375.8.535.241.13

MANUKYAN, Yu. S., DZHAGAROV, Yu. A., Tbilisi Affiliate of the All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleyev

"An Interference Modulator of Optical Emission"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki.
No 10, Apr 73, Author's Certificate No 344790, Division G, H, filed 23 Mar 70,
published 8 Feb 73, p 195

Translation: This Authors Certificate introduces an interference modulator of optical emission which contains a laser and a double interferometer such as a Michelson interferometer. As a distinguishing feature of the patent, in order to produce a pulse train with controllable duration and recurrence rate and to increase speed, the arms of the interferometer contain optical delay lines and phase correctors coupled by a synchronous control mechanism.

1/1

USSR

UDC 681.325.54

CHAVCHANIDZE, V. V., KAKICHASHVILI, Sh. D., ~~DZHAGAROV, Yu. A.~~, CHIKVAIDZE, D. V., LESELIDZE, D. V., CHRAKADZE, M. I., TEVDORASHVILI, K. G., and LOBZHANIDZE, V. V.

"Optical Signal Adder"

USSR Author's Certificate No 269606, filed 27 Jan 69, published 28 Jul 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6 B185 P)

Translation: An optical signal adder for signals given in the form of pictures of rectangular shape is introduced. The adder contains an optical interferometer. It is distinguished by the fact that in order to improve the light efficiency and insure addition with respect to any modulus, the expanding system for conversion of the light pictures to a quadratic matrix is located at its input, after which along the channels corresponding to the components there are a Dove prism and a system of rhombic prisms with sequentially decreasing height the number of which per unit is less than the summation modulus. At the output of the indicated channels there is an interference mixer followed by the compressing system.

1/1

- 75 -

USSR

UDC: 621.374.33:681.325.65:621.383

KAKICHASVILI, Sh. D., DZHAGAROV, Yu. A., TEPLITSKIY, E. Sh., Institute of Cybernetics, Academy of Sciences of the Georgian SSR

"An Electro-Optical Device Which Utilizes Ultrasonic Traveling Waves"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296104, division G, filed 21 Jul 68, published 12 Feb 71, p 151

Translation: This Author's Certificate introduces an electro-optical device which utilizes an ultrasonic traveling wave. The device contains a liquid-filled vessel with an absorber applied to its wall. As a distinguishing feature of the patent, the device is designed for parallel logical processing of data blocks (e. g., performing the AND logic operation). The unit contains matrices of input sources of acoustic waves equipped with an acoustic focusing device.

1/1

USSR

UDC 616.12-008.331.4:613.11(23)

MGELADZE, N. V., and DEHAGASHVILI, O. A., Clinical Department, Abkhaz ASSR
Affiliate of the Institute of Health Resorts and Physiotherapy, Ministry
of Health Georgian SSR, Sukhumi

"Clinicophysiological Investigations on Patients with Hypotension During
Adaptation to a Middle Mountain Climate and During Readaptation"

Moscow, Voprosy Kurortologii, Fizioterapii, i Lechebnoy Fizicheskoy Kul'tury,
No 2, Mar/Apr 72, pp 101-105

Abstract: Cardiovascular, respiratory, and EEG measurements were taken on
72 females and 32 males mostly 20-40 years old suffering hypotension 3-5
years before admission to the Avdkhar Health Resort, during the first days
of treatment, upon termination of treatment (24 days), during the first 10
days of readaptation to Sukhumi conditions, and 2-3 months after treatment.
During adaptation, symptoms disappeared in 32 patients, remained the same
in 47, and new ones appeared in 25, insomnia, headaches, and labored breathing
being most common. Upon readaptation, 26 patients complained of a return of
insomnia, headaches, and giddiness. Arterial pressure increased 17 mm in
patients with highest initial pressure (90 mm) and 10 mm with lowest initial
pressure (65 mm). Circulation rates, intensity of oxidative processes,
1/2

USSR

MGELADZE, N. V., and SZHAGASHVILI, O. A., Voprosy Kurortologii, Fizioterapii, 1 Lechebnoy Fizicheskoy Kul'tury, No 2, Mar/Apr 72, pp 101-105

and the oxyhemometric index increased at the resort, while all indexes decreased during readaptation. ECG indexes indicated that the P-Q segment and the QRS complex shortened in patients with high tonus in the vagus system due to stimulation of the sympathetic nervous system, while a lengthening of the P-Q segment and QRS complex were observed in patients with high sympathetic tension due to stimulation of the parasympathetic nervous system. Indexes for vital capacity, breathing volume per minute, breathing depth, O_2 absorption, and the O_2 utilization factor demonstrated that breathing functions and effectiveness improve at the resort. Cerebrocortical stimulation increases during adaptation and is inhibited after readaptation. Thus treatment of hypotension in a middle mountain climate improves the conditions of most patients. Treatment was not as effective for patients that evidenced a pathological reaction during the adaptation period, but effectiveness could be improved if the reaction is recognized immediately and handled accordingly. Treatment response is persistent, as is evidenced by further increases in arterial pressure and continued improvement in general condition 2-3 months after treatment.

2/2

- 51 -

USSR

UDC 615.216.5.015.156

DZHAGATSPANYAN, I. A., and KALYGUL', T. A., Phsychopharmacological Laboratory,
Institute of Pharmacology, USSR Academy of Medical Sciences, Moscow

"An Experimental Formulation of Certain 'Withdrawal' Phenomena Produced by
Stoppage of Long-Term Administration of Diazepam and Chlorodiazepoxide"

Moscow, Farmakologiya i Toksikologiya, No 5, Vol XXXIV, Sep-Oct 71, pp 527-531

Abstract: Scattered reports have appeared concerning drug dependence in
schizophrenics and epileptics treated over extended periods with heavy doses
of Diazepam and Chlordiazepoxide, the "withdrawal" symptoms including agita-
tion, tremor, convulsions and even status epilepticus. However, no adequate
analysis of the causative factors, or generalization of observed results,
has been undertaken.

The authors tested several groups of white rats, administering 5, 10
and 20 mg/kg of Diazepam, 5, 10 and 40 mg/kg of chlordiazepoxide, and 50 mg/kg
of phenobarbital-sodium (Nembutal), daily, for periods of 7, 14 and 28 days.

Lowered sensitivity threshold for Corazol (pentylenetetrazone) was
clearly evident in all cases, and this effect was proportional to duration
and size of dosage. Phenobarbital-sodium produced a greater degree of thresh-
old lowering than the other drugs.

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- 65 -

USSR

UDC 628.33/.36 + 541.15

DZHAGATSPANYAN, R. V., GERSHENOVICH, A. I., and FILIPPOV, M. T.

"Radiation Purification of Sewage"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva Imeni D. I. Mendeleyev,
Vol 17, No 2, 1972, pp 177-184

Abstract: A review with 12 references devoted to the utilization of high energy radiation in purification of sewage. It covers the questions of the acceleration of the sedimentation of suspensions, removal of phenols, decomposition of cyanides, radiation disinfection, and purification of the sewage from synthetic surfactant materials resistant to biological oxidation. Economical cost analysis of the method has been covered on the basis of literature reports. Synergism between the radiation and biological oxidation methods was discussed as well as the sources of radiation adaptable to sewage purification.

1/1

1/2 030 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--CORROSION OF CONSTRUCTION MATERIALS DURING THE SULFOXIDATION OF
HYDROCARBONS -U-

AUTHOR--(05)--BALAKIREV, YE.S., USTROUMOVA, V.V., GERSHENOVICH, A.I.,
DZHAGATSPANYAN, R.V., KHROMENKOV, L.G.
COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(2), 224

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--STEEL CORROSION, STAINLESS STEEL, ALLOY DESIGNATION, CORROSION
RATE, CORROSION RESISTANCE, SULFOXIDE, LEAD ALLOY, HYDROCARBON, SULFONIC
ACID/(U)SO LEAD ALLOY, (U)KH18N12M2T STAINLESS STEEL, (U)OKH23N28M3D3T
STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1992/0749

STEP NO--UR/0365/70/006/002/0224/0224

CIRC ACCESSION NO--AP0111942

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0111942

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE HG PHOTOCHEM. SULFOXIDN. OF ALIPHATIC C SUB10-20 HYDROCARBONS, SATISFACTORY CORROSION RESISTANCE WAS FOUND FOR STEEL OKH23N28M3D3T OR KH18N12M2T, OR PB S-O, THE CORROSION RATES BEING 0.040, 0.048, AND 0.034 G-M PRIME2-HR. DURING THE ALC. EXTN. OF THE SULFONIC ACIDS, THE CORROSION RATES FOR THE STEELS WERE 0.00075 G-M PRIME2-HR.

UNCLASSIFIED

USSR

UDC 621.396.622.2:621.372.622(085.8)

DZHAGUROV, R. G., ALI-KADE, D. G., Azerbaydzhan Institute of Petroleum and Chemistry

"A-Frequency Converter"

USSR Author's Certificate No 256829, Filed 15 Apr 68, Published 10 Apr 70 (from
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D60 P)

Translation: This Author's Certificate introduces a frequency converter based on a nonlinear element and equipped with four input and two output electrodes. To improve the stability of its parameters, the nonlinear element is a piezoelectric device made in the form of a cube on whose faces the input and output electrodes are located.

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--A PIEZOELECTRIC VOLTMETER FOR ALTERNATING CURRENT -U-

AUTHOR--(02)-DZHAGUPOV, R.G., RAGIMOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY.
PRIBOROSTROYENIYE, NO 2, 1970, 31-33
DATE PUBLISHED--70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., METHODS AND EQUIPMENT

TOPIC TAGS--VOLTMETER, ALTERNATING CURRENT, PIEZOELECTRIC TRANSDUCER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1693

STEP NO--UR/0146/70/000/002/0031/0033

CIRC ACCESSION NO--AT0123517

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AT0123517
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDY THE BASIC
PRINCIPLES INVOLVED IN THE CONSTRUCTION OF HIGH VOLTAGE VOLTMETERS FOR
ALTERNATING CURRENT. THE POSSIBILITY OF USING PIEZOELECTRIC TRANSDUCERS
FOR THIS PURPOSE IS INVESTIGATED. BASIC RELATIONSHIPS DESCRIBING THE
VOLTMETER ARE GIVEN ALONG WITH SOME EXPERIMENTAL DATA. FACILITY:
AZERBAIDZHAN INSTITUTE OF PETROLEUM AND CHEMISTRY IMENI A. AZIZBEKOV.

1/2 009 UNCLASSIFIED PROCESSING DATE--30UC170
TITLE--CHEMICAL STRUCTURE OF THE ALKALOID HERBAYINE ISOLATED FROM THE
PERIWINKLE, VINCA HERBACEA, GROWING IN THE GEORGIAN SSR -U-
AUTHOR-(02)-DZHAKELI, E.Z., MUDZHIRI, K.S.
COUNTRY OF INFO--USSR
SOURCE--SOOBShCH. AKAD. NAUK GRUZ. SSR 1970, 57(2), 353-6
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ALKALOID, MOLECULAR STRUCTURE, PROCESSED PLANT PRODUCT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1891 STEP NO--UR/0251/70/057/002/0353/0356
CIRC ACCESSION NO--AP0123679
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123679

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IR, NMR, AND MASS SPECTRA OF
HERBIVINE, AN ALKALOID FROM V. HERBACEA, SHOWED IT TO BE I (R EQUALS ME,
R PRIME1 EQUALS H) OR I (R EQUALS H, R PRIME1 EQUALS ME).
FACILITY: INST. FARMAKOKHIM. IM. KUTATELADZE, TBILISI, USSR.

UNCLASSIFIED

USSR

UDC 519.214

DZHAKHANGIROVA, F. A. and NAGAYEV, A. V.

"Multidimensional Integral Limit Theorem Allowing for Large Deviations"

Tashkent, Sluchayn. protsessy i smezhn. vopr.--Sbornik (Random Processes and Related Problems -- Collection of Works), Part 2, 1971, "Fan", pp 25-35 (from Referativnyy Zhurnal -- Matematika, No 9, Sep 71, Abstract No 9V74, by V. Petrov)

Translation: An examination is made of the sequence $\{\xi_n\}$ of independent, identically distributed, two-dimensional random vectors with bounded distribution density $p(x) = p(x_1, x_2)$ satisfying the condition $p(x) \sim \exp\{-|x|^\beta\}$ as $|x| \rightarrow \infty$, where $\beta > 1$.

A study is made of the asymptotic behavior, as $\gamma \rightarrow \infty$, of the probability $P(\xi_1 + \dots + \xi_n \in A_{\gamma n})$, where A_α is the same region as in Abstract No 9V73.

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USSR

UDC 519.2

DZHAKHANGIROVA, F. A., NAGAYEV, A. V.

"Large Probability Deviations of the Sums of Two-Dimensional Random Vectors"

V sb. Sluchayn. protsessy i stat. vyvody (Random Processes and Statistical Conclusions--collection of works), Tashkent, Fan, 1971, 00 18-33 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V24)

Translation: Let $\xi_j = (\xi_{j1}, \xi_{j2})$, $j = 1, 2, \dots$, be independent identically distributed two-dimensional random vectors. Then let

$$M_{\xi_{11}} = M_{\xi_{12}} = 0, D_{\xi_{11}} = D_{\xi_{12}} = 1, |M_{\xi_{11}\xi_{12}}| < 1.$$

Let us set

$$\xi_n = \xi_1 + \xi_2 + \dots + \xi_n.$$

A study is made of the behavior of the probability $P\{\xi_n \in A_\alpha\}$, where A_α is the domain bounded by the curve

$$\alpha x(y) = \{\alpha x_1(y), \alpha x_2(y)\},$$

when $\alpha \rightarrow \infty$. This problem was investigated in references (RZh-Matematika, 1967, 1V9; 1970, 10V39). The purpose of the present paper was to obtain an explicit expression for the principal term of the asymptotic representation of the probability $P\{\xi_n \in A_\alpha\}$ for different assumptions with respect to the domain A_0 .

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- 5 -

USSR

DZHAKHANGIROVA, F. A., et al., Sluchayn. protsessy i stat. vyvody, Tashkent, Fan, 1971, pp 18-33

It is assumed that the distribution of the random vector ξ_j is absolutely continuous with limited density $p(x)$ where for $|x| \rightarrow \infty$

$$p(x) = e^{-|x|^{\beta}} (1 + O(|x|^{-\beta_1})), \beta > 1, \beta_1 > 0;$$

here $x = (x_1, x_2)$, $|x| = \sqrt{x_1^2 + x_2^2}$.

USSR

UDC 519.2

DZHAKHANGIROVA, F. A., NAGAYEV, A. V.

"Large Probability Deviations of the Sums of Two-Dimensional Random Vectors"

V sb. Sluchayn. protsessy i stat. vyvody (Random Processes and Statistical Conclusions--collection of works), Tashkent, Fan, 1971, 00 18-33 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V24)

Translation: Let $\xi_j = (\xi_{j1}, \xi_{j2})$, $j = 1, 2, \dots$, be independent identically distributed two-dimensional random vectors. Then let

$$M\xi_{11} = M\xi_{12} = 0, D\xi_{11} = D\xi_{12} = 1, |M\xi_{11}\xi_{12}| < 1.$$

Let us set

$$\zeta_n = \xi_1 + \xi_2 + \dots + \xi_n.$$

A study is made of the behavior of the probability $P(\zeta_n \in A_\alpha)$, where A_α is the domain bounded by the curve

$$x(t) = (x_1(t), x_2(t)),$$

when $\alpha \rightarrow \infty$. This problem was investigated in references (RZh-Matematika, 1967, 1V9; 1970, 10V39). The purpose of the present paper was to obtain an explicit expression for the principal term of the asymptotic representation of the probability $P(\zeta_n \in A_\alpha)$ for different assumptions with respect to the domain A_α .

1/2

- 5 -

USSR

DZHAKHANGIROVA, F. A., et al., Sluchayn. protsessy i stat. vyvody, Tashkent, Fan, 1971, pp 18-33

It is assumed that the distribution of the random vector ξ_j is absolutely continuous with limited density $p(x)$ where for $|x| \rightarrow \infty$

$$p(x) = e^{-|x|^\beta} (1 + O(|x|^{-\beta_1})), \beta > 1, \beta_1 > 0;$$

here $x = (x_1, x_2)$, $|x| = \sqrt{x_1^2 + x_2^2}$.

USSR

UDC: 519.214

DZHAKHANGIROVA, F. A., NAGAYEV, A. V.

"A Multidimensional Integral Limit Theorem Which Accounts for Large Deviations"

V sb. Sluchayn. protsessy i smezhn. vopr. Ch. 2 (Random Processes and Related Problems--collection of works. Part 2), Tashkent, "Fan", 1971, pp 25-35 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V74)

Translation: The authors consider a sequence $\{\xi_n\}$ of independent identically distributed two-dimensional random vectors with bounded probability density function $p(x) = p(x_1, x_2)$, which satisfies the condition $p(x) \sim \exp\{-|x|^\beta\}$ when $|x| \rightarrow \infty$, where $\beta > 1$. An investigation is made of the asymptotic behavior of the probability $P(\xi_1 + \dots + \xi_n \in A_{\gamma n})$ as $\gamma \rightarrow \infty$, where A_α is the same region as in Abstract No 9V73. V. Petrov.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CALCULATION OF TRANSFER PHENOMENA IN SEMICONDUCTORS DURING ELECTRON
SCATTERING FROM NEUTRAL IMPURITY ATOMS -U-
AUTHOR--DZHAKSIMOV, YE.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK UZB. SSR, SER. FIZ. MAT. NAUK 1970, 14(2), 39-42

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR, ELECTRON SCATTERING, PHONON, ATOM, WEAL
MAGNETIC FIELD, STRONG MAGNETIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1015

STEP NO--UR/0166/70/014/002/0039/0042

CIRC ACCESSION NO--AP0124674

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124674

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GALVANOMAGNETIC AND
THERMOMAGNETIC EFFECTS ARE CALCD. BY TAKING INTO ACCOUNT THE PHONON DRAG
ON ELECTRONS AND ELECTRON SCATTERING FROM NEUTRAL ATOMS. THE CALCNS.
ARE MADE FOR THE WEAL MAGNETIC FIELDS AS WELL AS FOR THE STRUNG ONES BY
USING SEMIQUANT. KINETIC EQUATIONS.

UNCLASSIFIED

USSR

UDC: 532.13'5--1--2

DZHAKUPOV, K. B.

"Computing Two-Dimensional Hydrodynamic and Heat-Exchange Currents in a Viscous Liquid"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR--
Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 23-33

Abstract: A method is developed for solving practical problems in the hydrodynamics of a viscous, compressible fluid, with an equation of state which expresses the density as a function of the temperature only. The system of Navier-Stokes and heat flow equations for this equation of state is not a system of the Cauchy-Kovalevskiy type; consequently, the numerical methods which can be used in a perfect viscous gas cannot be used for this case. The basis of the approach used in this paper is that the solution to the original problem of the Nav'ye-Stokes and heat flow equation system is constructed as is the solution to a problem of equivalent type. The numerical solution, as obtained with an electronic digital computer, then involves no special difficulties and can be done by fractional steps. The system developed by the author is stable in time and for large Reynolds numbers. He is connected with the Kazakh State University at Alma-Ata, and expresses his
1/2

USSR

UDC: 532.13'5--1--2

DZHAKUPOV, K. B., Izvestiya Sibirskogo Otdeleniya Akademii Nauk
SSSR--Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 23-33

gratitude to Candidate of Technical Sciences G. S. Nus, Academician N. N. Yanenko, Corresponding Member of the USSR Academy of Sciences O. F. Vasil'yev, and B. G. Kuznetsov for their comments.

2/2

- 13 -

USSR

UDC 612.821.6+612.039

DZHALAGONIYA, SH. L., Institute of Experimental Pathology and Therapy, Academy
of Medical Sciences, USSR, Sukhumi

"Generation of a Neurotic State in Monkeys With an Intact Brain and With
Damaged Frontal Lobes"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 22, No 4,
Jul/Aug 72, pp 708-717

Abstract: Experiments were performed on seven adult baboons living in large cages with ample freedom of movement. In two of them, various frontal lobe areas had been extirpated bilaterally 18 months prior to the tests. Frequent random changes in the daily routine and confusing delivery of conditioned stimuli -- allowing the animals no time to adapt themselves to the changing conditions and inducing psychological strain, conflicts in tribal relations, and collisions of natural biological reflexes -- produced severe neurosis in the intact monkeys, manifested in conditioned motor alimentary reflexes as well as emotional and behavioral reactions. Even though the daily routine was normalized after 6 months, the neurosis did not subside throughout the 18 month long period of observation. In the monkeys with damaged frontal lobes, the neurosis was much less severe, and mild conditioned shifts were of a reactive, reversible nature.

1/1

- 49 -

Epidemiology

USSR

UDC 616.621.5-036.33+576.858.75

IL'INA, T. S., DZHALALOV, KH. D., VARSANOVA, YE. TA., YELISEYEVA, T. S., SEMIKHANIDU, L. G., and KIRGIZOVA, T. M., Laboratory of Virology, Scientific Studies Institute of Epidemiology, Microbiology, and Infectious Diseases

"Epidemiological Characteristic of Three Epidemics of Flu Produced by the A₂ Hong Kong Virus"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 8, Aug 73, pp 68-73

Abstract: Since the appearance of the A₂ Hong Kong flu virus in January, 1969, in Tashkent, there have been three epidemics. Although the epidemics were similar in a general way, each exhibited particular features of the spread of infection, age of those infected, change with time and season of the year, and immunological characteristics toward various serums. The studies indicated that the cycles of flu produced by the A₂ Hong Kong-68 flu virus showed a tendency toward a gradual damping of the epidemic process, which is expressed in a decrease in the intensity of subsequent epidemics, in the reduction in the severity of the disease, in a decrease in infectiousness among adults, but an increase among young children, and in a general increase in immunity.

1/1

USSR

DZHAFAROV, A. D., and DZHALALOVA, D. M., Chair of Infectious Diseases, Clinical Faculty, and Central ~~Scientific Research~~ Laboratory, Tashkent Medical Institute

"The Problem of Cardiac Failure in Brucellosis"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 7, Jul 70, pp 30-32

Abstract: Electrocardiogram changes indicating myocardial failure were found in almost two thirds of a group of brucellosis patients. Polycardiographic studies showed disturbances, in cardiac activity phases in over half of the patients examined, exhibited by a lowered contractile function of the myocardium, disturbance of the expulsion period (blood expelled from the heart to the vessels), the indicator of mechanical coefficient, the intrasystolic indicator, and the index of myocardium tonus. These observations were made on patients who did not complain of any cardiovascular problems and who aside from muted heart tones, had no clinical symptoms indicative of any heart problems. These data show that cardiac failure must be taken into consideration in brucellosis patients before physiotherapy or vaccine therapy is prescribed.

1/1

Ion Exchange

USSR

UDC 661.185.223

NAZIROVA, R. A., DZHALILOV, A. T., FATKHULLAYEV, E., and ASKAROV, M. A.,
Tashkent Polytechnical Institute

"Study of the Properties of Ion Exchange Membranes Based on Furance Ion
Exchange Resins"

Tashkent, Uzbekskiy Khimicheskii Zhurnal, No 6, 1973, pp 15-17

Abstract: Thermal stability of ion exchange membranes obtained from furan
ion-exchange resins was investigated by means of the thermographic and
thermogravimetric method. It was established that such membranes are highly
stable in water -- up to its boiling point. In the air they were heat re-
sistant up to the temperatures of 100 to 120°C.

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USSR

Ion Exchange

UDC 661.182.12.62.278.572.772.2

ASKAROV, M. A., DZHALILOV, A. T., NAZIROVA, R. A., FATKHULLAYEV, E.

"Synthesis of Interpolymer Ionite Membranes of Furan Ionites"

Tashkent, Uzbekskiy Khimicheskiy Zhurnal, No 2, 1972, pp 43-45.

Abstract: Heterogeneous membranes based on furan ionites have good mechanical strength and thermal stability but insufficient electrochemical properties. In order to produce ionite membranes with good mechanical strength, thermal stability and high electrochemical properties, the authors synthesized interpolymer membranes by molecular combination of polyelectrolytes with thermoplastic polymers. The basic condition of synthesis of the interpolymer membranes is selection of a common solvent for the polyelectrolyte and inert polymer providing for their molecular combination. Interpolymer membranes are distinguished from heterogeneous membranes by their high exchange capacity and electrochemical properties. Thus, the interpolymer membranes produced, due to their high physical-chemical and electrochemical properties, can be used in processes of demineralization of water on electrodialysis installations.

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USSR

UDC 661.183.3+547.724.1

MIRKAMILOVA, M. S., IBRAGIMOVA, G. T., and DZHALILOV, A. T., Tashkent Polytechnical Institute

"Synthesis and Investigation of Anion Exchange Resins Made From the Polycondensation Products of Furfural and Diamines"

Tashkent, Usbekskiy Khimicheskiy Zhurnal, No 5, 1970, pp 84-86

Abstract: The anion exchange resin was obtained by condensing furfural with p-phenylenediamine in presence of dimethylformamide and $ZnCl_2$. p-Phenylenediamine was dissolved at 60-70° in dimethylformamide in a trineck flask equipped with a stirrer, reflux condenser and thermometer; $ZnCl_2$ was added in an amount equal to 2% of the weight of the reagent. Then a freshly distilled furfural was added dropwise. The mixture was kept for 7-8 hrs at 80-85°, the dark gel-like material was placed in a dessicator kept at 110-115° and left there for 24 hrs. The mass solidified in the dessicator; it was ground, washed and dried. The exchange resin thus obtained proved to have good physico-chemical properties and high thermal stability.

1/1

USSR

UDC 616.981.42-036.12:616.981.42-085.371-039.7(575.1)

DZHALILOV, K. D., Uzbek Institute of Epidemiology, Microbiology, and Infectious Diseases, Tashkent

"Clinical Picture of Chronic Brucellosis Among Vaccinated Persons in Uzbekistan"

Moscow, Klinicheskaya Meditsina, No 1, 1973, pp 98-101

Abstract: Analysis of the case histories of over 1000 farmhands and workers in meat-processing plants in an endemic focus of brucellosis showed that the course of the disease (primary and secondary metastatic forms) was more severe in individuals who had been vaccinated against brucellosis from 1 to 5 years before contracting the disease than in those who had never been vaccinated. The reticuloendothelial, nervous, and cardiovascular systems were more frequently involved in the vaccinates with both forms of the disease. Most of these persons had never been revaccinated.

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- 17 -

USSR

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UDC: 616.981.42-036.22(575)

DZHALILOV, K.D., DZHEURAYEV, N.D., MUSABAYEV, I.X., YUSUPOV, K.YU., and PULATOV, YA.G., Uzbek Institute of Epidemiology, Microbiology, and Infectious Diseases, and Uzbek Republic Sanitary Epidemiological Station and Infectious Diseases,

"Aspects of the Epidemiology of Brucellosis in Uzbekistan"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 2, 1970, pp 116-120

Abstract: Although the incidence of brucellosis has declined sharply in recent years in the Soviet Union as a whole, it remains high in the Central Asian republics, particularly Uzbekistan, mainly because cattle and sheep raising is widespread in both the public and private sectors. From 1962-1966 cattle were the source of the disease in man in 60.6% of the cases, sheep and goats in 32.5%, and other animals in 6.9%. The main routes of infection were alimentary (30.9%), contact (16.2%), and combined alimentary-contact (9.9%). The peak of the disease occurred during the spring and summer, when contacts of people with animals (lambling, shearing of wool) were most frequent, and consumption of dairy and milk products highest. Farms affected with the disease in 1966 were in Kashkadar'ya oblast (15.8%), Samarkand (14.2%), Tashkent oblast (12.3%), Karakalpak ASSR (12%), Surkhandar'ya (11.4%), Andizhan (10.7%) and Fergan (8.7%) oblasts. Among humans, more cases of chronic brucellosis than acute forms of the disease are reported every year.

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Acc. Nr: **AP0043938**

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i
Immunobiologii, 1970, Nr 2, pp 116-120

SOME PROBLEMS OF EPIDEMIOLOGY OF BRUCELLOSIS
IN UZBEKISTAN

Dzhalilov, K. D.; Dzhurayev, N. D.; Musabayev, I. K.;
Yusupov, K. Yu.; Pulatov, Ya. G.

As a result of analysis of the incidence of brucellosis and of individual problems of epidemiology and epizootology concerning brucellosis in Uzbekistan in 1956-1966, it was established that the index of brucellosis affection of farm animals was unequally distributed in the republic: in 1962-1966 88.7% of the affected animals were found in Samarkand, Bukhara, Kashkadarya, and Tashkent regions, and also Karakalpak ASSR and Tashkent city, only 11.3% being revealed in Surkhandarya, Khoresm, Fergana and Syrdarya regions.

A spring-summer seasonal prevalence was noted (80%). It was shown that brucellosis infection of human beings occurs mainly by alimentary route, cattle serving as the source of infection.

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USSR

UDC 537.311.1 3

ABDULLAYEV, G. B., Academician of the Academy of Sciences Azerbaydzhan SSR,
ALIYEV, G. M., MEKHTIYEVA, S. I., MAMEDALIYEVA, G. G., GADZHIYEV, F. B.,
DZHALILOV, N. Z., and ABDINOV, D. Sh., Institute of Physics of the Academy of
Sciences Azerbaydzhen SSR, Baku

"On the Origin of Hole Conduction in Selenium"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 4, 1 Oct 70, pp 798-800

Abstract: The type of conductivity of amorphous selenium with different degrees of crystallinity and also of monocrystalline selenium before and after deoxygenization was studied to obtain information on the origin of its hole conduction and to clarify the possibility of producing selenium with electron conduction. It is noted that it has been previously assumed that oxygen atoms in selenium cause its hole conduction by producing acceptor levels but that direct data supporting this assumption is practically null. It is stated that the electrical properties of selenium are not associated with the presence of periodicity in the lattice but are basically determined by the short-range order; this short-range order therefore determines the width of the forbidden zone and consequently the concentration of natural free electrons and holes. Under amorphization of the material there occurs a grouping of atoms around the defects such
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USSR

ABDULLAYEV, G. B., et al, Doklady Akademii Nauk SSSR, Vol 194, No 4, 1 Oct 70, pp 798-800

that admixtures which are active in the crystalline state become inactive in the amorphous state. Under deoxygenization of polycrystalline hexagonal selenium the conductance at a given temperature reduces by a factor of 1000; i.e., is approximately 100 times greater than in the case of single crystalline selenium. This is attributed to two factors: (a) in the production of single crystals of selenium the selenium is cleaned of oxygen admixtures; and (b) oxygen atoms in polycrystalline samples, by reducing the intermolecular potential barriers, cause a growth in the mobility of current carriers during the motion of current carriers. The change in the electrical properties of single crystals of selenium under deoxygenization is attributed to the entry of oxygen atoms in the selenium lattice.

2/2

- 16 -

USSR

UDC 599.32:591.1:591.543.1

DZHALILOV, P. S., Department of Physiology, Academy of Sciences Uzbek SSR

"The Effect of High Temperature on Tissue Respiration in the Liver, Skeletal Musculature, and Skin of Rodents"

Tashkent, Uzbekskiy Biologicheskii Zhurnal, No 4, 1970, pp 26-28

Abstract: Oxygen uptake was studied in the liver, quadriceps femoris and intercostal muscles, and skin of 26 laboratory rats and 25 greater gerbils exposed to temperature of 33° to 35° and 38° to 40°C for 2 and 4 hours. The high temperatures decreased the intensity of oxidative processes while elevating body temperature. Oxygen uptake decreased in rats in all the experimental variations, but did so in the gerbils only after 4 hours' exposure. Tissue respiration in rats varied with the duration of exposure. The reduced oxygen uptake is regarded as an adaptation to high temperature which apparently results from changes in the activity of the respiratory enzymes participating in the oxidation-reduction processes.

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1/2 007

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE—BROMO SUBSTITUTED 1, THIAINDANS —U—

AUTHOR—(03)—NUMANOV, I.O., DZHALOLOV, S.S., NASYROV, I.M.

COUNTRY OF INFO—USSR

SOURCE—DOKL. AKAD. NAUK TADZH. SSR 1970, 13(4), 31-4

DATE PUBLISHED—70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—BROMINATED ORGANIC COMPOUND, HETEROCYCLIC SULFUR COMPOUND,
CATALYTIC ORGANIC SYNTHESIS, PROPIONIC ACID, BENZENE DERIVATIVE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BROMINATION OF 1-THIAINDAN AT
50-60DEGREES IN CCL SUB4 GAVE (FORMULAS SHOWN ON MICROFICHE).
FACILITY: INST. KHIM., DUSHANBE, USSR.

UNCLASSIFIED

DZHAM. ALET DINO, I. Kh.

ITK 59068
C-73

XV-6. STUDY OF THE SURFACE STRUCTURE OF EPITAXIAL SILICON USING THE METHOD OF SLOW ELECTRON DIFFRACTION

Article by D. S. Kuz', V. I. Pashkudenko, I. Kh. Dzhamaletdinov, V. V. Khar'chenko, Tashkent: Novosibirsk, III Sibirskiy nauchnoy seminar, 1972, p. 217

By using the slow electron diffraction procedure on the (111) surface of epitaxial silicon grown in the chloride process, the superstructure of 5×5 was detected. It was demonstrated that its occurrence arises from the presence of chlorine. It is characteristic that the 5×5 superstructures etched with hydrogen chloride.

The chlorine content in the silicon is determined to a significant degree by the growth conditions, and it correlates with the time of existence of the 5×5 superstructure. Relations were made of the effect of certain crystallization parameters on the chlorine capture by the epitaxial layers of silicon during the growth process.

DZHAMALOVA, A. S.

DEEP THERMAL STREAM IN THE DAGESTAN TERRITORY

By A. S. Dzhamalova

Translation of "Glubinyy Teplovoy Potok
Na Territorii Dagestana,"
"Nauka" Press, Moscow, 1969

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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NASA TT F-000
May 72

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DEEP THERMAL STREAM IN THE DAGESTAN TERRITORY
KANA TT F-696

A. S. Izbashvili

ABSTRACT. The results of a study of the magnitudes and variations of the deep thermal flow and its radiogenic portion in sedimentary rock profiles in the Dagestan A.S.R. are presented in this book. The effect of the geological conditions on its distribution is evaluated. This book is useful for solving problems of the energetics of terrestrial processes and appraising geothermal resources.

PREFACE

The study of the deep thermal flow has important theoretical significance since information about it is absolutely essential in solving problems concerning the thermal history and thermal equilibrium of the Earth, deep temperature distribution, the energetics of geological processes, and a number of other problems. Study of the thermal flow permits exposure of the spatial differences in the intensity of the deep thermal processes, and a way for an evaluation of the role played by various factors in its formation. On the other hand, study of the thermal flow has great practical value in explaining the thermal regimen of specific portions of the Earth's crust and in determining perspectives for the utilization of subterranean heat.

Considering the theoretical value of geothermal studies and the presence of considerable deep terrestrial heat resources in the USSR which could be utilized in the national economy, the value and the necessity of further universal development of works in this field are especially great. Among the most promising areas for the utilization of terrestrial heat is Dagestan.

Academy of Sciences USSR, Scientific Council for Geothermal Studies

Numbers in the margin indicate pagination in the foreign text.

Despite recent accomplishments in the field of heat flow spatial distribution studies, the number of its measurements on the continents is still far from adequate. Meanwhile, there are also no quantitative data concerning the significance of the various heat sources in the formation of the geothermal field. It was in this connection that the author attempted to study the deep thermal flow in differently structured portions of the Earth's crust on the basis of a specific area -- the Ingushetia plateau and plain -- and to make a quantitative evaluation of radiogenic heat generation in the sedimentary stratum. The study of this region is even more important because Ingushetia is of great interest as a promising region for practical utilization of terrestrial heat.

/6

This work was completed over the period 1965-1967 under the direction of P. A. Makhamedov, Doctor of Geological and Mineralogical Sciences, in the Laboratory of Geology and Hydrochemistry of the Earth Zone, Geological Institute of the Academy of Sciences of the USSR. On the basis of the results of this work, the author made experimental determinations of the thermal conductivity of sedimentary rocks in various areas of Ingushetia (125 determinations) as well as measurements of the radiogenic elements contained in the same rocks (100 determinations). The results of temperature measurements in oil wells were applied at the same time, which required special evaluation of the correlation of these data with the stationary heat field. In addition, the results of thermometric studies carried out in this region by other authors were studied. On the basis of these data, an analysis of the thermal field distribution is made in this work, as well as analysis of the role of radioactive decay within the sedimentary series in the geothermal region within the Earth's interior.

The experimental work and field studies were made in close association with the Dagestan Scientific Research Division for Energetics and the Administration of "Mugnet". The Severo-Kavkazskiy (North Caucasus) Geological Laboratory, in the person of Ch. I. Shul'man, Director of the Geophysical Laboratory, was of great assistance in carrying out the experimental determinations of radioactivity of the rocks.

The author is deeply indebted to her supervisors, P. A. Melnikov, for constant advice and assistance.

Valuable counsel and comments were also received during the course of the study from Ye. A. Lyubimova, I. M. Kuznetsov, B. G. Fedotkin, N. A. Piskovskiy, V. I. Kononov, Ya. B. Salmov, and V. M. Serebreny. The graphic material was prepared with the aid of N. I. Slits. To all of the persons named, the author expresses her most sincere gratitude.

DZHAMARDZHASHVILI, V.A.

INFLUENCE OF THE METHOD OF LIQUIDIFYING THE VAPOR PHASE
ON THE FORCE CHARACTERISTICS OF THE ACCELERATOR OUTPUT
OF A LIQUID-HEATED TWO-CONVERTER

UDC 621.362.530.4

ISSN 57915
5 January 1973

Article by V.A. DZHAMARDZHASHVILI, Moscow,
Institute of Mechanical Engineering, Academy of Sciences of the USSR,
Moscow, U.S.S.R.

Abstract. A thermodynamic analysis is given of several types of accelerators for liquid-metal two-converters with the parameters and the expenditure at the output of the accelerator given as well as by allowing for the losses in the variations examined. The authors have determined the values of the losses from the velocities from the working medium at the output of the vapor nozzle and the expenditure through the vapor nozzle. A comparison was made of the expended types of accelerators and the condensation of the vapor phase by mixing with a cooled liquid. The authors chose the measurable output in the working medium at the output from the accelerator and the efficiency of converting thermal energy into kinetic energy as the indicator of comparison. They determined the limiting values of the coefficient of losses in velocity and the efficiency of the accelerators in kinetic energy, respectively, under the condition of equating the comparison indicators in each type to their values for the basic variation with condensation of the vapor phase by mixing. The method cited for comparison permits making a realistic comparison of the expended types based on the indicators which take into account the additional losses other than those caused by the

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[I - USSR - 2]

Impact processes. The article contains 1 illustration, 2 tables, and 7 bibliographic references.

Thermodynamic analysis and comparison of the types of liquid-metal MHD-converter cycles certain difficulties arise involving the fact that by using the methods of classical thermodynamics it is impossible to compute the irreversible losses in energy in carrying out a thermodynamic analysis of detailed cycles. Therefore in carrying out a thermodynamic analysis of detailed cycles of the influence of change in parameters on the efficiency it is necessary to study a simplified model of the cycle (without reversible expansion), which takes into account the losses in the characteristic forms of losses in energy for the whole cycle. A similar approach has been used in a number of papers on the thermodynamic analysis of the cycles of MHD-converter with a liquid-metal working medium. As the characteristic losses in energy in studying the cycles of the MHD-converter with liquid-metal working medium, the authors consider: (a) the losses in the process of condensation, the authors do not take into account the losses in the flow of vapor and liquid in the liquid-metal working medium in the process of the vaporization of the vapor [3-5]. Conversion to the definition of efficiency of the real cycle is accomplished, as a rule, by introducing the values of the internal relative efficiency of the elements whose values correspond to the level of the experimental data available at the given stage [2, 4]. In carrying out the individual types and comparing them this approach has obvious disadvantages such as (a) the lack of quantitative dependences of the values of the internal relative efficiency of the elements on the thermodynamic parameters; (b) the difficulty of expressing the entire group of generalized results in the accuracy values of these efficiencies as new results are obtained from experimental investigations; and (c) the necessity of additional classification and conversion of the values of the internal relative efficiency of the elements. Therefore in the present article the authors propose to find the values of the internal relative efficiency of the elements of the cycle by introducing into analysis of the thermodynamic cycle, as a rule, the current stage of the method discussed in an idealized cycle of all it allows, by thermodynamic analysis, to obtain the reciprocal relationship of the parameters and their influence on the two basic indicators used as the internal functions for the MHD-converter with a liquid-metal working medium, that is, the efficiency of the proportion of the

USSR

UDC 519.2

AZLAROV, T. A., DZHAMIRZAYEV, A. A.

"Relative Stability for Sums of a Random Number of Random Variables"

Izv. AN UzSSSR. Ser. Fiz.-mat. n. (News of the Uzbek SSR Academy of Sciences, Physical and Mathematical Sciences Series), 1972, No 2, pp 7-14 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V14)

Translation: Let ξ_{nk} , $k = 1, 2, \dots$, for each $n \geq 1$ be a sequence of independent identically distributed random variables and v_n , $n = 1, 2, \dots$ be a sequence of random variables assuming integral nonnegative values.

The basic result of this paper is the following:

Theorem 1. If the following conditions are satisfied: A) $P\{v_n/k_n < x\} \rightarrow A(x)$ for $n \rightarrow \infty$ at the continuity points of $A(x)$ where $A(x)$ is a distribution function such that $A(+0) = 0$, k_n , $n \geq 1$ is a sequence of nonnegative numbers such that $k_n \rightarrow \infty$ for $n \rightarrow \infty$ and B) $\xi_{n1} + \dots + \xi_{nk_n} \xrightarrow{P} 1$ for $n \rightarrow \infty$, then

$$P\{\xi_{n1} + \dots + \xi_{nk_n} < x\} \rightarrow A(x) \text{ for } n \rightarrow \infty$$

at the continuity points of the distribution function $A(x)$.

A study was made of the application of theorem 1 to the investigation of

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AZLAROV, T. A., et al., Izv. AN UzSSSR. Ser. Fiz.-mat. n., 1972, No 2, pp 7-14

the asymptotic behavior of the lifetime of a duplicated system with fast recovery and behavior of the stationary length of the queue and waiting time for the system $M|G|1$ under high loading conditions.

Let us note that the more general result in theorem 1 is presented in the paper by the reviewer [D. Sil'vestrov] (RZh-Matematika, 1972, 1V76).

2/2

- 5 -

USSR

UDC 519.2

DZHAMIRZAYEV, A. A.

"Generalization of the Khintchine Theorem of Relative Stability"

Nauch. tr. Tashkent. un-t (Scientific Works of Tashkent University), 1972, vyp. 402, pp 39-44 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V23)

Translation: Let $\{X_n\}$ be the sequence of positive independent identically distributed random variables and $\{v_n\}$ be the sequence of random variables assuming only integral positive values. Assuming that there is a numerical sequence $\{k_n\}$ which satisfies the condition $k_n \rightarrow \infty$ and

$$\frac{v_n^p}{k_n} \rightarrow v, \quad (1)$$

where v is the positive random variable, the author shows that the known A. Ya. Khinchin condition necessary and sufficient for relative stability of the sums $X_1 + \dots + X_n$ also turns out to be necessary and sufficient for the existence of a numerical sequence $\{c_n\}$ such that

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USSR

DZHAMIRZAYEV, A. A., Nauch. tr. Tashkent. un-t, 1972, vyp. 402, pp 39-44

$$\frac{1}{c_n}(X_1 + \dots + X_{v_n})^p v_n.$$

The case of replacement of the condition (1) by the condition of convergence with respect to distribution of the sequence $\{v_n/k_n\}$ to the positive random variable is also investigated.

2/2

- 3 -

USSR

UDC 615.281.8:665.336.6

VICHKANOVA, S. A., DZHANASHIYA, N. M., and GORYUNOVA, L. V., All-Union
Institute of Medicinal Plants, Moscow

"Antiviral Activity of the Essential Oil of *E. viminalis* and Some Other
Hardy Eucalyptus

Moscow, Farmakologiya, i Toksikologiya, No 3, 1973, pp 339-341

Abstract: The antiviral action of essential oils obtained from 4 eucalyptus
species - *E. viminalis*, *E. macarthurii*, *E. dalrympleana*, and the pharmacopo-
eial *E. cinerea* - was studied in two models of influenza (in vitro and in
ovo). Mice were injected intranasally with a mixture of an essential oil
(100 µg/ml) and influenza virus. Chick embryos were injected with an es-
sential oil and infected with virus 2 hours later. The virucidal effect
of the essential oils was clearly manifested only at LD₁₀₀ (80 to 100%
survival rate). The antiviral activity of the essential oil of *E.*
viminalis (at LD₁₀₀) was higher than that of *E. cinerea* in the in vitro
experiments but somewhat lower in the chick embryo model (3- to 11-fold
decrease in hemagglutination titer compared with the control).

1/1

- 39 -

1/2 028 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF METASTABILITY ON THE PROPERTIES OF PLASTICALLY DEFORMED
ALUMINUM -U-
AUTHOR-(03)-UZHANBUSINOV, YE.A., BOK, B.I., PRESNIAKOV, A.A.
COUNTRY OF INFO--USSR **D**
SOURCE--AKADEMIIA NAUK KAZAKHSKOI SSR, IZVESTIIA, SERIIA
FIZIKO-MATEMATICHESKAIA, VOL. 8, MAR.-APR. 1970, P. 77-80.
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--PLASTIC DEFORMATION, SUPER PLASTICITY, PLASTIC FLOW, HIGH
PURITY METAL, ALUMINUM ALLOY, MECHANICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0347

STEP NO--UR/0361/70/008/000/0077/0080

CIRC ACCESSION NO--AP0124104

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124104

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL DEMONSTRATION OF THE PHENOMENON OF SUPERPLASTICITY IN PURE ALUMINUM SUBJECTED TO PRIOR PLASTIC DEFORMATION. IT IS SHOWN THAT THE BRINGING OF ALUMINUM INTO A METASTABLE STATE BY MEANS OF PLASTIC DEFORMATION LEADS TO THE OCCURRENCE OF CERTAIN PHYSICOCHEMICAL PROCESSES WHICH MANIFEST THEMSELVES IN A SUPERPLASTIC FLOW OF THE METAL.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EFFECT OF PRELIMINARY DEFORMATION ON THE PLASTICITY OF ALUMINUM -U-

AUTHOR--(03)-BOK, B.I., DZHANBUSINOV, YE.A., PRESNYAKOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--VESTN. AKAD. NAUK KAZ. SSR 1970, 26(2), 53-7

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--PLASTICITY, ALUMINUM ALLOY, PLASTIC DEFORMATION, METAL
DEFORMATION, WORK HARDENING, MECHANICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1989/1744

STEP NO--UR/0031/70/026/002/0053/0057

CIRC ACCESSION NO--AP0108111

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108111

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCE WAS STUDIED OF THE PLASTICITY OF AL (99.7PERCENT), WHICH WAS DEFORMED PREVIOUSLY BY VARIOUS DEGREES OF WORK HARDENING BY COLD ROLLING. THE AL SPECIMENS WERE COLD ROLLED WITH DEFORMATIONS 0-80PERCENT (FINAL TEMP. AT THE END OF ROLLING LESS THAN 100DEGREES). SPECIMENS WERE THEN CUT INTO PIECES (WITH AVOIDANCE OF ADDNL. WORK HARDENING). THESE SPECIMENS WERE SUBJECTED TO TENSION WITH THE FOLLOWING ELONGATION RATES: 2,4,10,20,50,100, 500, AND 1000 MM-MIN. THE PLASTICITY WAS DETD. AT 20-600DEGREES AT INTERVALS OF 25DEGREES. INITIAL PLASTIC DEFORMATION HAD A LARGE EFFECT ON THE MECH. PROPERTIES. AT 20-250DEGREES THE PLASTICITY OF PRELIMINARILY DEFORMED AL DECREASED SIGNIFICANTLY, WHILE AT 350-600DEGREES THE PLASTICITY INCREASED. IN THE LOW PLASTICITY ZONE, PLASTICITY MAX. OCCURRED AT 100, 200, AND 300DEGREES. RHEOTROPIC RECOVERY WAS ACCOMPANIED BY AN ABNORMALLY HIGH PLASTICITY AT SIMILAR TO 575DEGREES. THE SUPERPLASTICITY (ACCOMPANIED BY RECRYSTN. WITH STABILIZATION) OCCURRED NOT ONLY WITH ALLOYS BUT ALSO WITH PURE METALS (AL) AND IS THE RESULT OF DEFORMATION AND STABILIZATION.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--EXPERIMENTAL DETERMINATION OF THE EXTENT OF LONG RANGE ORDERING IN
ALLOYS OF THE COPPER PLATINUM SYSTEM -U-
AUTHOR--KARPENYUK, A.N., PRESNYAKOV, A.A., OZHANBUSINOV, YE.A., MELIKHOV,
V.D.
COUNTRY OF INFO--USSR
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1), 140-2
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SUBJECT AREAS--MATERIALS

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONCN. CHANGES WERE DETD. AS A FUNCTION OF RELATIVE INTEGRAL INTENSITY OF HIGH RESOLN. (321) AND (410) LINES AND AS A FUNCTION OF THE EXTENT OF LONG RANGE ORDER IN A CU,PT ALLOY (ANNEALED FOR 1732 AND 2164 HR). THE EXTENT OF LONG RANGE ORDER CHANGED MARKEDLY AT 12.5-20 ATOM PERCENT PT, APPARENTLY, DUE TO FORMATION OF ORDERED CU SUB7 PT AND CU SUB4 PT PHASES.

Radiobiology

USSR

UDC 616-001-026

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"Changes in the Phase Structure of the Cardiac Cycle During Continuous Whole-
-Body Irradiation of Rabbits"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 1, 1973, pp 193-195

Abstract: The first signs of approaching radiation shock appeared in rabbits within 30 to 35 minutes of continuous whole-body irradiation at 10 to 16 krad, although blood pressure remained fairly high. The period of contraction increased while the duration of ejection decreased. Blumberger's mechanical coefficient also decreased and Heggin's interval became sharply negative. Thus, despite the fact that blood pressure, pulse, and respiratory rate at this time had not changed significantly, there were clear indications of the phase syndrome of hypodynamia of the left ventricle. After exposure to doses ranging from 18 to 25 krad, the animals' blood pressure began to fall quickly, the pulse and respiration slowed, and the symptoms characteristic of radiation shock appeared. The animals died within 20 to 30 minutes in a state of deep shock. The phase structure of the cardiac cycle was severely disrupted.

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USSR

UDC 616.931.336

KHORAVA, G. V., DARTSMELIYA, N. V., and DZHANDZHGAVA, M. V., Sukhumi Hospital for Infectious Diseases

"Several Cases of Sodoku"

Moscow, Sovetskaya Meditsina, No 2, 1973, p 146

Abstract: Excerpts are presented from the case histories of 3 persons (29, 75, and 8 years old) who were bitten by rats and developed sodoku with the typical symptoms of the disease - fever, local inflammatory reaction at the site of the bite, headache, and enlargement of the regional lymph nodes. Penicillin proved to be efficacious in all 3 cases (200,000 every 4 hours for 4 to 7 days), and there were no relapses.

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Semiconductor Technology

USSR

UDC 541.183.02 + 539.232

BAGRATISHVILI, G. D., GOGESHVILI, M. D., DZHANELIDZE, R. B.,
CHAGELISHVILI, V. A., and KHARATI, R. G.

"Structure and Properties of Germanium Oxide Films"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 342-344

Abstract: The authors undertook to obtain germanium oxide films during the oxidation of single-crystal germanium with gaseous oxygen and to compare them with GeO_2 films obtained by other methods, as well as to study their structure and properties. Specimens of GeO_2 films were obtained by the following methods: 1) pyrolytic decomposition of tetraethoxygermanium, 2) oxidation of Ge in an oxygen stream, and 3) oxidation of germanium after gas etching in O_2 in an oxygen atmosphere in a closed system. The resultant GeO_2 films were studied by means of IR spectra and by electron

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USSR

BAGRATISHVILI, G. D., et al., Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 342-344

diffraction. It was found that different crystallographic modifications of GeO_2 are obtained according to the experimental conditions. An amorphous modification of GeO_2 results from decomposition of tetraethoxygermanium, hexagonal from oxidation in an oxygen stream, tetragonal from oxidation in a closed system with preliminary gas etching with oxygen. The resultant crystallographic modifications are characterized by different work function and resistivity values, with these parameters increasing as follows: amorphous < hexagonal < tetragonal, coinciding with the direction of material density increase. The effect of water vapor at various temperatures on the structure and properties of GeO_2 was studied to find whether the transition of different modifications from one to the other is possible. IR spectra indicate that with the treatment

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BAGRATISHVILI, G. D., et al., Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 342-344

of amorphous GeO_2 in a stream of $\text{H}_2\text{O} + \text{Ar}$ the transition to a hexagonal modification begins at comparatively low temperatures. Treatment of tetragonal GeO_2 in a stream of $\text{H}_2\text{O} + \text{Ar}$ results in its irreversible transition to a hexagonal modification.

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USSR

UDC 613.633:[622.341.1+622.341.2

TOKMURZINA, R. U., and DZHANGOZINA, D. M., Institute of Labor Hygiene and Occupational Diseases, Karaganda

"Biological Aggressiveness of Some Types of Dust Generated by Iron and Manganese Ores in Kazakhstan"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 8, Aug 70, pp 51-54

Abstract: The irritating effects of typical dusts from Fe and Mn ores of the Karazhal'sk deposit, as well as the pathological changes in rat lung produced by these dusts, were studied. The rats were given 50 mg of dust suspended in physiological saline intratracheally and then sacrificed 1, 2, and 6 mos later. Dust of hematite-magnetite Fe ore produced a pneumoconiosis whose severity increased with an increasing content of free SiO_2 in the dust. Mn ore dust had a fibrogenic effect, which was ascribed to the action of free SiO_2 combined with an inflammatory effect of Mn on lung tissue. Fe-Mn ore dust gave rise to sidero-manganosis and had the strongest fibrogenic effect. Its action was due to the combined effect of Fe and Mn, rather than to that of SiO_2 . The chemical composition of ore dusts of the types studied is given.

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USSR

UDC 678.742.66.081

AKHMEZADE, D. A., MARKOVA, YE. I., IBRAGIMOVA, D. S., and
DZHANIBEKOV, N. F., INKHP, Academy of Sciences Azerbaydzhan SSR

"Stabilization of Polypropylene by Certain Salts of O,O-Diphenyl-
dithiophosphoric Acid"

Baku, Azerbaydzhanskiy Khimicheskiy Zhurnal, No 4, 1972, pp 98-101

Abstract: Ni, Co, Cd, Ba, Ca, and Mg salts of O,O-diphenyldithio-
phosphoric acid were studied for their stabilizing effects on poly-
propylene (brand 0.5P10/20). The salts were added to powder
preparations of polypropylene to final concentrations of 0.5, 1.0,
or 3.0 wt%, which were then subjected to 200 atm at 200°C to form
0.2-0.4 mm thick plates. The effects of heat, aging, and light
on these plates were then evaluated in terms of physicomechanical
and rheological indexes, as well as on the basis of oxidation
induction periods. The results confirmed previous studies that
Ni, Co, and Cd salts were most effective in this respect, and
that the optimal concentrations ranged from 0.5-1.0 wt%. Although
even greater effectiveness was obtained with certain salts at a
concentration of 3.0 wt%, the use of such high concentrations is
contraindicated.

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USSR

UDC: 678.5.06:624.074.4.001

BELOZEROV, L. G., DZHANKHOTOV, S. O., and NAUMOV, I. M., Central Aerodynamics Institute imeni Prof. N. Ye. Zhukovskiy, Moscow Oblast'; Scientific-Research Institute of the Technology and Organization of Production, Moscow

"Critical Stresses of Compressed Cylindrical Shells Made From Orthotropic Layers With Differing Orientation"

Riga, Mekhanika Polimerov, No 4, Jul-Aug 73, pp 684-690

Abstract: Results are presented from an experimental study of the regularities associated with changes in deformations and critical stresses which take place in smooth thin-walled circular cylindrical shells made from glass reinforced plastic based on the EDT-10P binder with diverse orientation of the fabric filler during axial compression. The test results are compared to the calculated data which was obtained using formulas from the theory of elasticity of an orthotropic body and of orthotropic shells. It is shown that the walls buckled with accompanying flaking as the critical load was achieved during axial compression. Also two or three rows of rhombic depressions appeared on the shell surfaces stretching in a circular direction. The number of half-waves in the circular direction is six-seven. The buckling began in the elastic zone. After the load was removed the waves disappeared. It is shown that changing the angle of basis orientation during the combined winding of shells with $R/\delta=113$ does not have a significant effect on the magnitude of

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BELOZEROV, L. G., et al, Mekhanika Polimerov, No 4, Jul-Aug 73, pp 684-690

the critical stresses associated with axial compression. A comparison of the experimental and calculated results shows good agreement for the case where the axes of elastic symmetry of the material coincide with the main coordinate axes of the shells. In other instances, the calculated values exceed the experimental.

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USSR

UDC: 519.2:62-50

DZHANOYAN, V. A.

"Synthesis of Automatic Control Systems for the Case of Action in the Form of a Complex Markov Process"

Tr. Gruz. politekhn. in-t (Works of the Georgian Polytechnical Institute), 1970, No 4(139), pp 88-95 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V316)

Translation: Bellman's equation for an optimum quality criterion is written out for the case where an object subjected to random noise is described by a Stochastic Ito equation. An object described by a first order equation with iteration delay T is considered:

$$\frac{dy}{dt} = -\frac{1}{T}y + b_0u + z,$$

where z is white Gaussian noise and u is control. The quality criterion is quadratic and takes the form

$$M \int_0^T (x^* - y)^2 dt,$$

where x^* is the driving effect. Ya. Kogan.

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